

**APPENDIX B**  
**PENDING CLAIMS**

1. (Amended Herein) An over-coating composition for coating a photoresist composition to provide a vertical photoresist pattern, said over-coating composition comprising an over-coating resin derived from a mixture of acrylic acid, and an alkyl acrylate, a solvent, and a basic compound.

2. The over-coating composition according to claim 1, wherein said over-coating resin is a water-soluble polymer.

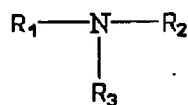
3. The over-coating composition according to claim 1, wherein said over-coating resin is poly(acrylic acid / methyl acrylate).

4. The over-coating composition according to claim 1, wherein pKa of the conjugate acid of said basic compound is about 13 or less.

5. The over-coating composition according to claim 1, wherein said basic compound is a nitrogen containing compound.

6. (Amended Herein) The over-coating composition according to Claim 1, wherein said basic compound is selected from the group consisting of an amine compound and a hydroxide salt thereof; an amide compound; a urethane compound; and a mixture thereof.

7. The over-coating composition according to claim 6, wherein said amine compound is of the formula:



wherein each of R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> is independently H, or C<sub>1</sub>-C<sub>20</sub> alkyl.

8. The over-coating composition according to claim 7, wherein said alkyl is selected from the group consisting of unsubstituted C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>1</sub>-C<sub>20</sub> hydroxyalkyl, C<sub>1</sub>-C<sub>20</sub> alkyl carboxylic acid, C<sub>1</sub>-C<sub>20</sub> aminoalkyl, C<sub>1</sub>-C<sub>20</sub> alkylketone, and C<sub>1</sub>-C<sub>20</sub> alkylester.

9. The over-coating composition according to claim 6, wherein said amine compound is selected from the group consisting of L-proline, a tetraalkylammonium hydroxide salt, a tri(hydroxyalkyl)amine, and a mixture thereof.

10. The over-coating composition according to claim 9, wherein said tetraalkylammonium hydroxide salt is selected from the group consisting of tetramethylammonium hydroxide and tetramethylammonium hydroxide pentahydrate.

11. The over-coating composition according to claim 9, wherein said tri(hydroxyalkyl)amine is triethanolamine.

12. The over-coating composition according to claim 1, wherein the amount of said basic compound is in the range from about 0.001 to about 0.1 mol% of said solvent.

13. The over-coating composition according to claim 1, wherein the amount of said solvent is in the range from about 1000 to about 7000% by weight of said over-coating resin.

14. (Amended Herein) A process for forming a photoresist pattern, comprising the steps of:

(a) coating a photoresist composition on a substrate to form a photoresist film;

(b) coating an over-coating composition on the upper portion of said photoresist film to form a over-coating, wherein said over-coating composition comprises

an over-coating resin derived from a mixture of acrylic acid and an alkyl acrylate, a solvent, and a basic compound;

(c) exposing said over-coated substrate to light using a light source;

and

(d) developing said exposed over-coated substrate.

15. The process according to claim 14, wherein said photoresist composition comprises a chemically amplified photoresist resin.

16. The process according to claim 15, wherein said chemically amplified photoresist resin is poly(tert-butyl bicyclo[2.2.1]hept-5-ene-2-carboxylate / 2-hydroxyethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate / bicyclo[2.2.1]hept-5-ene-2-carboxylic acid / maleic anhydride).

17. The process according to claim 14 further comprising a baking step before and/or after said exposure step (c).

18. The process according to claim 17, wherein said baking step is performed at a temperature range of from 10 to 200°C.

19. The process according to claim 14, wherein said light source is ArF, KrF, F<sub>2</sub>, EUV, E-beam, X-ray or ion beam.

20. A semiconductor element manufactured by the process according to claim 14.

21. A method for producing a substantially vertical photoresist pattern during a photolithography process, said method comprising coating an over-coating composition of Claim 1 to a substrate on top of a photoresist composition layer prior to subjecting the substrate to a photolithography process.